Peter Woo

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Education

University of Cambridge — Cambridge, UK

BA, MEng in Electrical, Information & Computer Engineering II.1 — *September 2019 - June 2023*

- **Relevant Courses**: RF Electronics, Electric Drive Systems, Dynamics, Signals and Systems, Systems and Control, Statistical Signal Processing, Information Theory and Coding, Medical Imaging and 3D Computer Graphics, Mathematical Methods, Mobile Robot Systems
- **Awards/ Achievements**: Queens' Engineering Fund Award, WCSIM Undergraduate Scholarship

Dulwich College & Hampton School — London, UK

*Secondary Education - 3A*A (F./Maths, Physics, Chemistry)* — *Spetember 2014 - June 2019*

- **Activities**: Founded Model Aviation Society, Designed PCBs for a brushless motor controller as part of Shell Eco Marathon (Electric Vehicles), UKMT Olympiad Medals/ Distinction, Arkwright Engineering Scholarship.

Experience

Undergraduate Research Assistant — Cambridge, UK

Prorok Lab — *August 2021 – Present*

- Responsible for the hardware design and component selection of sensors and SBC computers for an autonomous agile multirotor running Ardupilot and PX4.
- Created software packages capable of transmitting and receiving MAVLink and SBUS digital signals using ROS2. Contributed to the mavros project in the process.
- Implemented cascaded PID controllers and developed motion planning packages for Freyja, an LQR controller package for drones.
- Utilised Optitrack motion capture and RTK GPS systems to obtain accurate position data.
- Working knowledge of GNN architectures to coordinate multi-agent systems.

Project Manager — Cambridge, UK

InMoov Humanoid Robot — *April 2020 - Present*

- Managed a team of 10 students to develop an open source humanoid robot, InMoov. This involved managing project deadlines, assigning tasks and organising weekly meetings.
- Used OpenCV and Mediapipe (ML pipeline) to detect, track and mimic human poses from camera input.

Mechatronics Engineer — Cambridge, UK

Robocup Rescue Robot 'Arbie' — *October 2019 – January 2021*

- Responsible for the design and rapid prototyping of the gripper for a search and rescue rover.
- Used current feedback from Dynamixel servos to control the grip force applied on the object.

Embedded Microcontroller Projects

Internet of Things, Digital Signal Processing

- Implemented FFT and discrete time filtering techniques on sensor data for a microcontroller (Teensy 4.0) based 2-wheel balancing robot.
- Developed sensor networks and automated light switches on Unix based systems.

Technical Skills

Languages: Python*, C/C++**
Software Packages: ROS(2*), NumPy, Eigen, OpenCV
Design and Manufacture: Fusion 360*, KiCAD**, LTSpice**

* Proficient, ** Competent

Leadership and Interests

Co-Founder Cambridge, UK
Cambridge University Drone Society *September 2020 – Present*

- Facilitated the growth of the society to 10 dedicated members who have become competent in designing, building and flying aerial vehicles. The members had no prior experience in drones before joining the society.
- Pitched to a panel of industry representatives and secured funding for projects on autonomous flight and control.

Treasurer Cambridge, UK
Cambridge University Robotics *April 2019 – Present*

- Oversaw termly grant applications and prepared BOMs, balance sheets and inventory lists for the society, through which I learned how to better manage multiple projects.
- Planned and executed robotics related talks and lab tours to increase the interest in hands-on Engineering projects.
- With a team of 3 other executive members, we diversified the subject demographic of CUR members and increased the retention period that members stayed on to participate in projects.

Coxing Cambridge, UK
Queens' College Boat Club *September 2019 – Present*

- Motivated others to achieve success by breaking down large goals into smaller targets.

SLAM Study group Seoul, KR
SLAM KR *December 2020 – February 2021*

- Delivered and took part in weekly presentations for an online SLAM study group.

References

Dr. Andrew Gee
Director of Studies
Department of Engineering

University of Cambridge
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Dr. Amanda Prorok
Associate Professor
Department of Computer Science and Technology
University of Cambridge
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